

1 What is claimed is:

2
3 1. An apparatus for transferring ions from an ion source to a
4 time-of-flight mass analyzer, said apparatus comprising:

5 an ion trap having a plurality of poles arranged to form two
6 parallel adjacent planes, said planes perpendicular to the axis
7 of said mass analyzer;

8 a multipole ion guide; and

9 a trap electrode positioned between said ion guide and said
10 ion trap;

11 wherein an RF potential is applied to at least one of said
12 plurality of poles, and wherein a substantially DC potential is
13 applied to at least one of said plurality of poles, and wherein
14 the distance between said parallel planes is substantially
15 greater than the distance between poles within said planes such
16 that substantially no electric field is present within the area
17 between said parallel planes.